Rendering- General Information

To render: "to reduce, convert, or melt down (fat) by heating"; from Old French rendre, to give back.

Basic description of rendering-

Rendering is a cooking and drying process that yields fat of varying grades, both edible and inedible (depending on raw material source), and animal and poultry protein meals. At one time fat was separated from raw material by boiling the raw material with water, a process known as wet rendering. Now it is done by dry rendering, a process that releases the fat by dehydrating raw material in a batch or continuous cooker. This process eliminates the direct physical contact of added water and live steam with raw materials.

There are two types of rendering- batch cooking and continuous cooking.

In batch cooking, the horizontal vessel is filled with raw material and sealed. The material is processed under controlled conditions at atmospheric pressure depending on the raw material, the cooked material is discharged, and the cycle is repeated.

With continuous cooking, the raw material is fed semi-continuously to the cooker, and the cooked material is discharged at a constant rate. A continuous rendering system normally consists of a large single cooking unit, whereas the batch system consists of a few to many, smaller cooking units. A continuous system usually has a higher capacity than a batch system, which allows for more efficient processing of the raw material by processing more material in less time. When the raw material is processed, it is first mechanically sized (chopped or ground into small pieces of uniform size of 1 inch or less) and then cooked. As the material cooks, it releases moisture and fat. The discharge from the cookers is either passed across a vibrating screen or is conveyed over a perforated screen (drain screw) to allow the free-run fat to drain. This process separates the greasy cooked product (tankage—35% fat content) from the free fat. These greasy protein solids (4 to 6% moisture) are processed through a screw press to reduce the residual fat in the pressed protein to approximately 10 to 12% dry rendered tankage, called cracklings. Cracklings are sometimes sold as a commodity and priced on their protein content. Otherwise, cracklings are screened and ground with a hammermill to produce meat meal (less than 4% phosphorus), or meat and bone meal (more than 4% phosphorus).

Examples of products of rendering: meat-and-bone meals, tallow (rendered ruminant fat), lard (rendered pork fat), rendered poultry fat.

Products of rendering are used for the production of animal feeds as well as certain industrial materials (e.g., paints and other lubricants may contain tallow or derivatives).

Some rendered products- e.g., tallow and lard- are even used for human consumption.

There are three types of rendering facilities for which APHIS may be asked to provide approval under Regulation (EC) 1774/2002:

A. Category 3 rendering facility: A facility producing meals or fats through the high temperature and/or high pressure treatment of Category 3 materials. Products include items such as meat-and-bone meal, tallow, and lard. Generally, these materials would be used for animal feeding. E.g., as ingredients in pet food.

B. Category 2 rendering facility: A facility producing fat products for oleochemical production through the high temperature and/or high pressure treatment of Category 2 materials. Products include items such as tallow and lard.

C. Photographic gel bone facility: A rendering facility approved to produce rendered bone chips to supply gel bone to certain facilities in the United States producing gelatin for photographic purposes. These facilities are allowed to use certain SRMs.

Generally Category 2 rendered fats would be used for items other than animal (or human) consumption. E.g., for the production of industrial lubricants.